

A Comparison of the Sensitivity and Specificity of I-123 Whole body scan and Serum Thyroglobulin for Follow-up Thyroid Cancer Patients

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Abstract

Does the I-123 WBS have more sensitivity and specificity than Tg level test in follow-up for thyroid cancer? A comparison of the sensitivity & specificity between I-123 whole body scan (I-123 WBS) and serum thyroglobulin (Tg) for follow-up patients who were treated with I-131 for thyroid cancer was conducted.

Methods & material: The design of this study is

Null hypothesis: I-123 WBS has equal sensitivity or greater than Tg test when predicting recurrence of thyroid cancer.

Alternate hypothesis: I-123 WBS has less sensitivity than Tg test.

The population of this study is a convenience sample consisted of 28 patients who met the following criteria: 1) had follicular or papillary thyroid cancer or both, 2) between the period 2013 to 2015, and 3) had serum Tg results and had undergone I-123 WBS after one year of iodine therapy.

Any detectable Tg value was considered positive. Tg and I-123 WBS results were compared with the final impression, which was the radiologist determination from the patient history and other tests (besides Tg and I-123 WBS), We compared Sensitivity and Specificity for both tests

Results: Tg had a higher sensitivity than I-123 WBS. Tg has 75% sensitivity while I-123 WBS has 73.3 % sensitivity. I-123 WBS had a specificity of 100% and Tg had a specificity of 91.7%. Positive predictive Value (PPV) for Tg was 92.3%. and I-123 WBS was 100%. Negative Predictive Value (NPV) for Tg was 73.3% and I-123 WBS was 75%.

Conclusions: I-123 WBS should not be replaced by Tg. I-123 WBS has higher specificity.